2.2.8 Energy

2.2.8.1 Regulatory Setting

The CEQA Guidelines, Appendix F, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

2.2.8.2 Affected Environment

Southern California has had the benefit of sufficient energy supplies to serve the rapid growth that has taken place over the past 50 years. Much of the energy consumed in the region is for residential, commercial, and transportation purposes. SCAG tracks and forecasts energy use in the Southern California area. The proposed project's region includes the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura (SCAG, 2008). Transportation energy for motor vehicles is primarily provided by direct combustion of petroleum fuels (gasoline and diesel) with smaller contributions from compressed natural gas. Electricity is used in a relatively small number of electric-powered vehicles.

In addition to hydrocarbon energy sources, there are nearly 300 operational power plants located in the counties of Los Angeles, Orange, Riverside, and San Bernardino that each produce at least 100 kilowatts of electricity (CEC 2007a). Electric energy in the region is provided primarily through Southern California Edison and the Los Angeles Department of Water and Power distribution networks, along with three municipalities having their own power plants located in the region (i.e., Glendale, Burbank, and Pasadena) and by the Imperial Irrigation District and San Diego Gas & Electric providing service to the extreme southern areas of Riverside and Orange counties, respectively. Because of the current restructuring of the electric energy industry throughout California, many of the facilities are planned for the Los Angeles region, and they are currently going through the permitting process (CEC 2007b).

Most of the electric energy used in Southern California is imported to the region from coal-fired and hydroelectric generating facilities located elsewhere in California and out of state. Utilities in Southern California participate in power-sharing arrangements with many other entities throughout the western United States. In 2005, the SCAG region consumed almost 128,000 gigawatt-hours (GWh) of electricity, which was approximately 48 percent of the total consumption of the State. Electricity consumption has been increasing approximately 1.3 percent per year (SCAG 2007).

In 2005, the region consumed approximately 8.8 billion gallons of vehicle fuels, which was an increase of more than 20 percent from 1995 (SCAG 2007). The California Energy Commission (CEC) predicts that the natural gas demand in on-road vehicles will increase from 46 million therms in 2000 to 150 million therms in 2020. Transportation electricity will grow from 540 million kilowatt-hours (kWh) to 3,000 million kWh between 2000 and 2025 (CEC 2007c).

Forecasts by CEC indicate that on-road VMT (for light-duty vehicles, freight, and transit) in California will experience an average growth of 1.8 percent per year between 2000 and 2020 (CEC 2007).

The CEC base-case forecast projects statewide on-road gasoline demand to increase by 1.6 percent per year from 2000 to 2020. Diesel demand is expected to grow by an average of 2.4 percent per year from 2000 to 2020 (CEC 2007).

2.2.8.3 Environmental Consequences

Temporary Impacts

No Build Alternative

The No Build Alternative does not involve any construction. Therefore, there would be no temporary energy impacts associated with the No Build Alternative.

Build Alternatives 1 and 2

Construction equipment and construction worker vehicles operated during project demolition and construction would use fossil fuels. This increased fuel consumption would be temporary and would cease at the end of the construction activity, and it would not have a residual requirement for additional energy input. The marginal increases in fossil fuel use resulting from project construction are not expected to have appreciable impacts on energy resources.

Permanent Impacts

No Build Alternative

With the No Build Alternative, the portion of Ortega Highway from Calle Entradero to the City/County line would remain in its existing condition without improvements. Based on the traffic analysis conducted for this project (Austin-Foust, 2008), the ADT and VMT on Ortega Highway within the project limits for 2008 and 2035 under the No Build Alternative are shown in Table 2.2.8-1.

Table 2.2.8-1 Existing and Future (2035) Forecast ADT and VMT– No Build Alternative

	Automobiles	Trucks[3]
2008 ADT	27,000	5,292
2008 round-trips[1]	13,500	2,646
2008 VMT[2]	24,300	4,762
2035 ADT	39,000	7,644
2035 round-trips[1]	19,500	3,822
2035 VMT[2]	35,100	6,879

Source: Austin-Foust, 2008.
[1] Assumes that 50 percent of the total ADT represents round trips
[2] Assumes 20 miles round trip per automobile and truck.
[3] ADT and VMT assuming 2+ axle trucks make up 19.6 percent of total traffic for current year (2008) and for the forecasted year (2035).
ADT = average daily traffic
VMT = vehicle miles traveled

To determine the current (2008) fuel consumption, the 2008 average VMT for the project area is divided by the current average gasoline and diesel fuel efficiencies (24.1 miles per gallon [mpg] and 9.7 mpg, respectively) calculated for the project area, which yields a daily 2008 gasoline use estimate of approximately 1,008.3 gallons and a daily 2008 diesel use estimate of approximately 490.9 gallons.

Determining future 2035 fuel consumption under the No Build scenario would require the estimation of 2035 fuel efficiencies for both gasoline and diesel vehicles and advances in alternative fuel technology. The forecast future fuel efficiency is difficult to accurately predict, so this analysis will consider the "worst-case scenario," which utilizes the current fuel efficiencies, and assumes there is no improvement in alternative fuel technology or increase in alternative fuel technology use.

Under these "worst-case assumptions," the 2035 estimated daily gasoline use in the project area under the No Build Alternative would be approximately 1,456.4 gallons and the estimated daily 2035 diesel use would be 709.2 gallons.

The No Build Alternative does not involve any construction. Therefore, there would be no permanent energy impacts associated with the No Build Alternative.

Build Alternatives 1 and 2

Both Build Alternatives 1 and 2 would have similar impacts. Based on the traffic analysis conducted for this project (Austin-Foust, 2008), the ADT and VMT along Ortega Highway between Calle Entradero and the City/County line for 2008 and 2035 under the Build Alternatives are shown in Table 2.2.8-2. Using 2008 Alternative 1 a

Table 2.2.8-2 Existing and Future (2035) Forecast ADT and VMT–Build Alternatives

	Automobiles	Trucks[3]
2008 ADT	27,000	5,292
2008 round-trips[1]	13,500	2,646
2008 VMT[2]	24,300	4,762
2035 ADT	39,000	7,644
2035 round-trips[1]	19,500	3,822
2035 VMT[2]	35,100	6,879

[1] Assumes that 50 percent of the total ADT represents round trips
[2] Assumes 20 miles round trip per automobile and truck.
[3] ADT and VMT assuming 2+ axle trucks make up 19.6 percent of total traffic for current year (2008) and for the forecasted year (2035).
ADT = average daily traffic
VMT = vehicle miles traveled

and 2 VMT forecasts and future fuel efficiencies provides an estimate of daily 2035 gasoline use of approximately 1,456.4 gallons and a forecast 2035 diesel use of approximately 709.2 gallons. Since this is a no-growth project, there is no increase in traffic associated with this project; therefore, the only increase in energy use would be limited to the temporary increase in energy use during construction. When balancing energy used during construction in the short-term against energy saved by relieving traffic congestion during long-term operation, the project would not have substantial energy impacts and would benefit the region and residents of the State.

When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

2.2.8.4 Avoidance, Minimization, and/or Mitigation Measures

Build Alternatives 1 and 2 are not expected to result in permanent impacts to energy, and no avoidance, minimization, or mitigation measures are required.

Although, temporary impacts to energy are expected during construction activities, consumption of fossil fuels and electricity would occur at typical amounts, and excesses in consumption are not expected. Therefore, permanent impacts to energy are considered less than significant, and no avoidance, minimization, or mitigation measures are required.

2.2.8.5 Level of Significance

The No Build Alternative would not result in impacts to energy resources.

The Build Alternatives are not expected to result in permanent direct or indirect impacts to energy. As stated previously, the consumption of fossil fuels and electricity would occur at typical amounts, and excesses in consumption are not expected. Therefore, temporary direct or indirect impacts to energy are considered less than significant.